



DUCTLESS SPLIT-TYPE AIR CONDITIONERS

No.OB202

TECHNICAL & SERVICE MANUAL

Wireless type

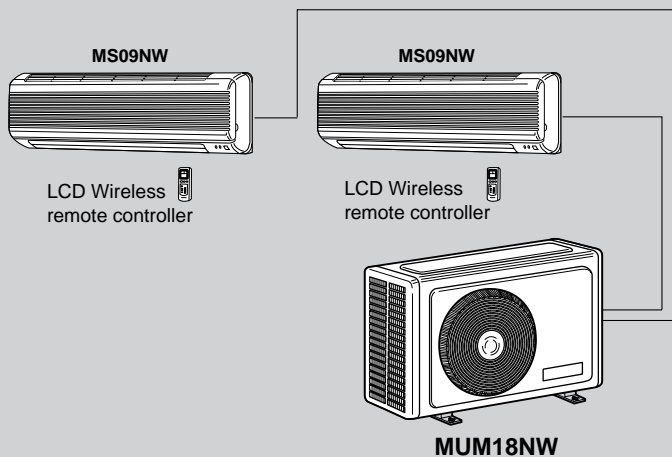
Models

MS09NWx2 • MUM18NW

CONTENTS

1. FEATURES	2
2. TECHNICAL CHANGES	3
3. PART NAMES AND FUNCTIONS.....	3
4. SPECIFICATIONS	4
5. DATA.....	5
6. OUTLINES AND DIMENSIONS	9
7. WIRING DIAGRAM	10
8. REFRIGERANT SYSTEM DIAGRAM	11
9. TROUBLESHOOTING.....	12
10. DISASSEMBLY INSTRUCTIONS.....	14
11. PARTS LIST.....	17
12. OPTIONAL PARTS.....	18

NOTE : For parts list, please refer to the following manuals.
MS09NW → OB192



The Slim Line.
From Mitsubishi Electric.

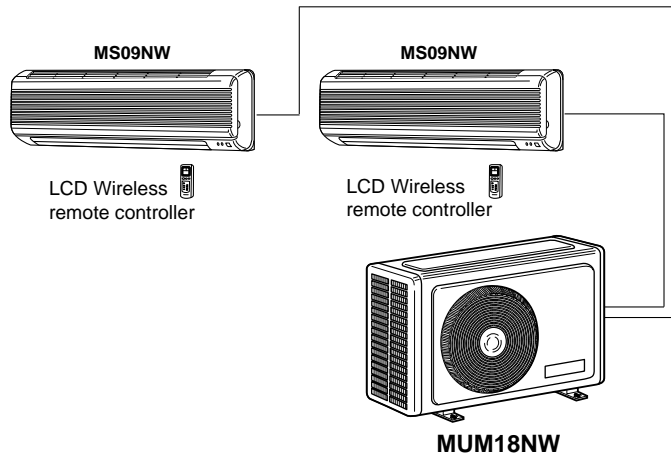


Mr. SLIM

1

FEATURES

This “2 to 1” Multi system consists of a single outdoor unit with two compressors that permit up to two indoor units to be installed separate rooms, each with its own controller.



Cooling Capacity (BTU/h)

Operation \ Indoor unit	MS09NW	MS09NW
1 Indoor Unit Operation	8,400	—
	—	8,400
2 Indoor Unit Operatin	8,400	8,400

1.SPACE-SAVING LAYOUT

Two indoor units are served by a single outdoor unit whose installation requires only minimum space. This allows equipment installed outside the house to be arranged in a neat, space-saving layout.

2.FLEXIBLE INSTALLATION OF INDOOR UNITS

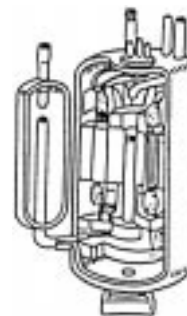
Each indoor unit can be connected to piping up to 49 feet in length, providing plenty of freedom in determining the best locations for installation.

3.AUTO-RESTART FUNCTION

The auto restart function restarts the equipment when power is restored following an outage automatically. Operation resumes in the mode in which the equipment was running immediately before the outage.

HIGH PERFORMANCE ROTARY COMPRESSOR

The advanced design of Mitsubishi Electric's powerful and energy-efficient rotary compressor results in lower operating costs and longer service life.



2

TECHNICAL CHANGES

MSM18EW → MSM18NW

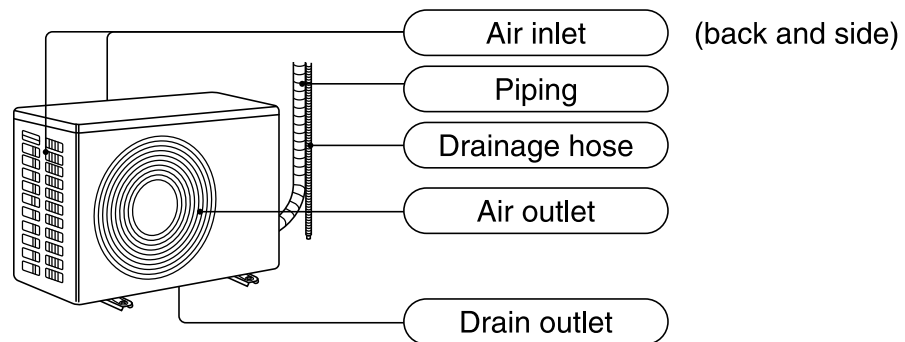
1. Indoor unit has been changed.
2. Outdoor unit has been changed.
3. Remote controller has been changed.
(The timer function was changed to the clock timer function.)
4. Indoor auto vave has been adopted.
5. Outdoor fan motor has been changed.
(SGW-60F-AC→RA6W60-AA)
6. The varistor and the fuse have been added to electric circuit of the outdoor unit.

3

PART NAMES AND FUNCTIONS

OUTDOOR UNIT

MUM18NW



4

SPECIFICATIONS

Items		Model	MSM18NW	
			SINGLE	DOUBLE
Cooling capacity	※1 BTU/h		8,400	8,400X2
Power consumption	※1 W		850	1,700
EER (Double unit operation)			9.9	
SEER (Double unit operation)			10.0	
INDOOR UNIT MODEL			MS09NWX2	
Extenal finish			White	
Power Supply	V, Hz, Phase		115,60,1	
Max. fuse size (time delay)	A		15	
Min. ampacity			0.5	
Fan motor	F.L.A		0.37	
Airflow	Dry	CFM	208-265-328	
Lo-Me-Hi	Wet	CFM	177-226-279	
Moisture removal (Pints/h)			-	
Cond. drain connection OD		in.	5/8	
Dimensions	W	in.	32-1/16	
	D	in.	7-3/16	
	H	in.	10-13/16	
Weight	lbs.		18	
OUTDOOR UNIT MODEL			MUM18NW	
External fnish			Munsell 5Y6.5/1	
Power supply	V, Hz, Phase		208/230,60,1	
Max. fuse sizu (time delay)	A		15X2	
Min. ampacity			14	14+13
Fan motor	F.L.A		1.0	
Compressor	Model		KH122WESX2	
	Winding resistance (at 68°F) Ω		C-R 0.98 C-S 2.21	
		R.L.A	10X2	
		L.R.A	37X2	
Refrigerant control			Capillary tube	
Dimensions	W	in.	33-1/2	
	D	in.	11-7/16 (12-5/8)	
	H	in.	23-7/8	
Weight	lbs.		122	
REMOTE CONTROLLER			Wireless type	
Control voltage (be built-in transformer)			12V DC	
REFRIGERANT PIPING			Not supplied (optional parts)	
Pipe size	Liquid	in.	1/4	
	Gas	in.	3/8	
Connection method	Indoors		Flared	
	Outdoors		Flared	
Between the indoor & outdoor units	Height difference	ft	Max. 25	
	Piping length	ft	Max. 49	

Notes ※1. Rating conditions (cooling) — Inddor : 80°FDB, 67°FWB, Outdoor : 95°FDB, 75°FWB

Operating Range

		Indoor air intake temperature	Outdoor air intake temperature
Cooling	Maximum	90°FDB,71°FWB	115°FDB
	Maximum	67°FDB,57°FWB	67°FDB

1.PERFORMANCE DATE (ONE INDOOR UNIT WITH ONE OUTDOOR UNIT)

MS09NW X 2
MUM18NW

Models	Indoor air		Outdoor intake air DB temperature(°F)													
	IWB (°F)	75			85			95			105			115		
		TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
MS09NW	71	10.3	5.93	0.76	9.61	5.55	0.83	9.03	5.21	0.89	8.4	4.84	0.94	7.73	4.46	0.98
	67	9.74	6.91	0.71	9.07	6.44	0.79	8.4	5.95	0.85	7.81	5.55	0.90	7.18	5.10	0.94
	63	9.16	7.72	0.68	8.48	7.16	0.75	7.9	6.66	0.81	7.18	6.06	0.87	6.55	5.53	0.90

Notes 1. IWB : Intake air wet-bulb temperature
 TC : Total Capacity (x10³ Btu/h), SHC : Sensible Heat Capacity (x10³ Btu/h)
 TPC : Total Power Consumption (kW)
 2. SHC is based on 80°F of indoor intake air DB temperature.

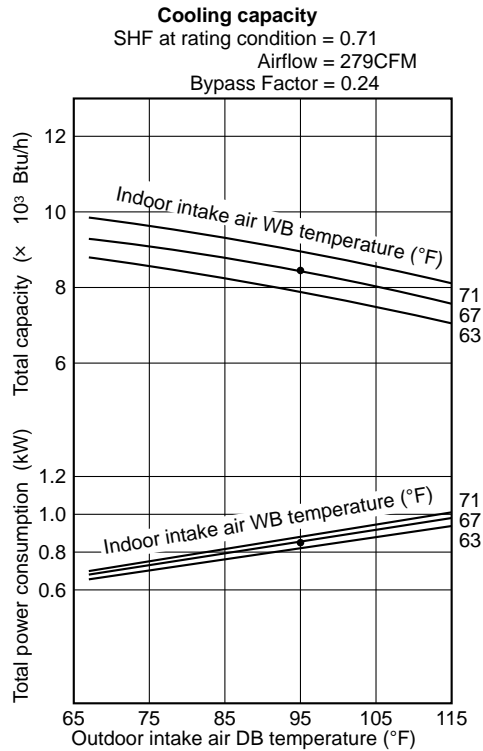
2) COOLING CAPACITY CORRECTIONS

MODEL	Refrigerant piping length (one way)		
	25ft (std)	40ft	49ft
MS-09NW	1.0	0.954	0.927

1.PERFORMANCE CURVE (ONE INDOOR UNIT WITH ONE OUTDOOR UNIT)

NOTE : A point on the curve shows the reference point.

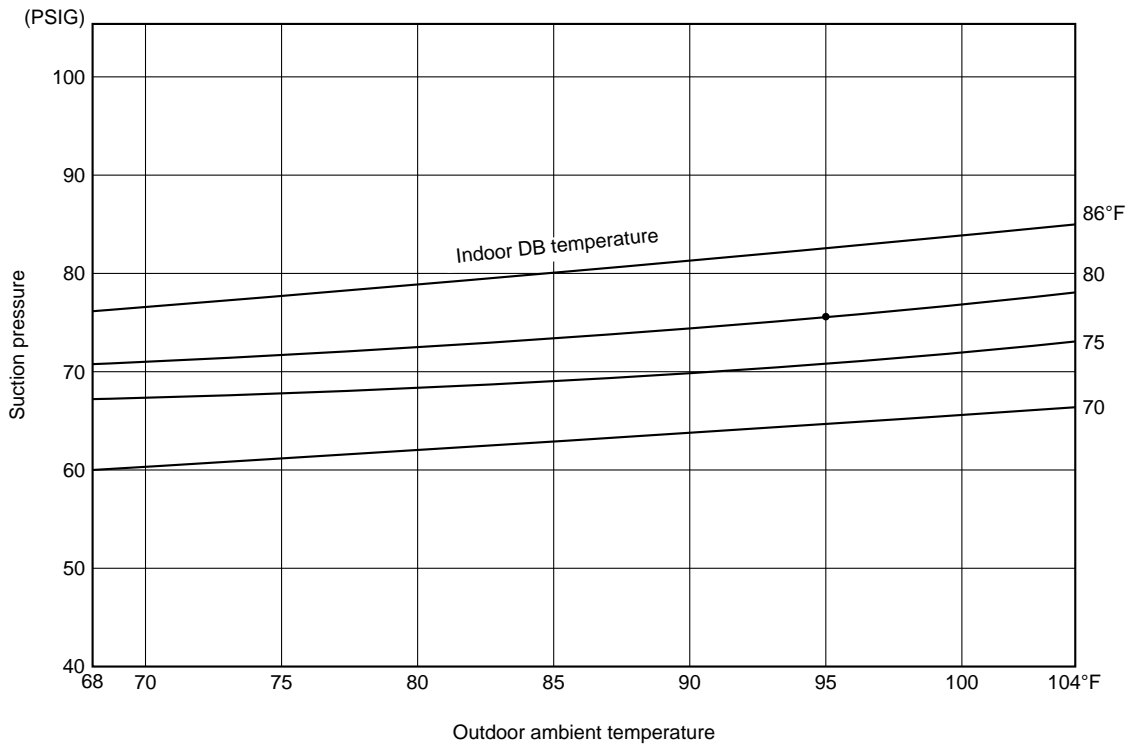
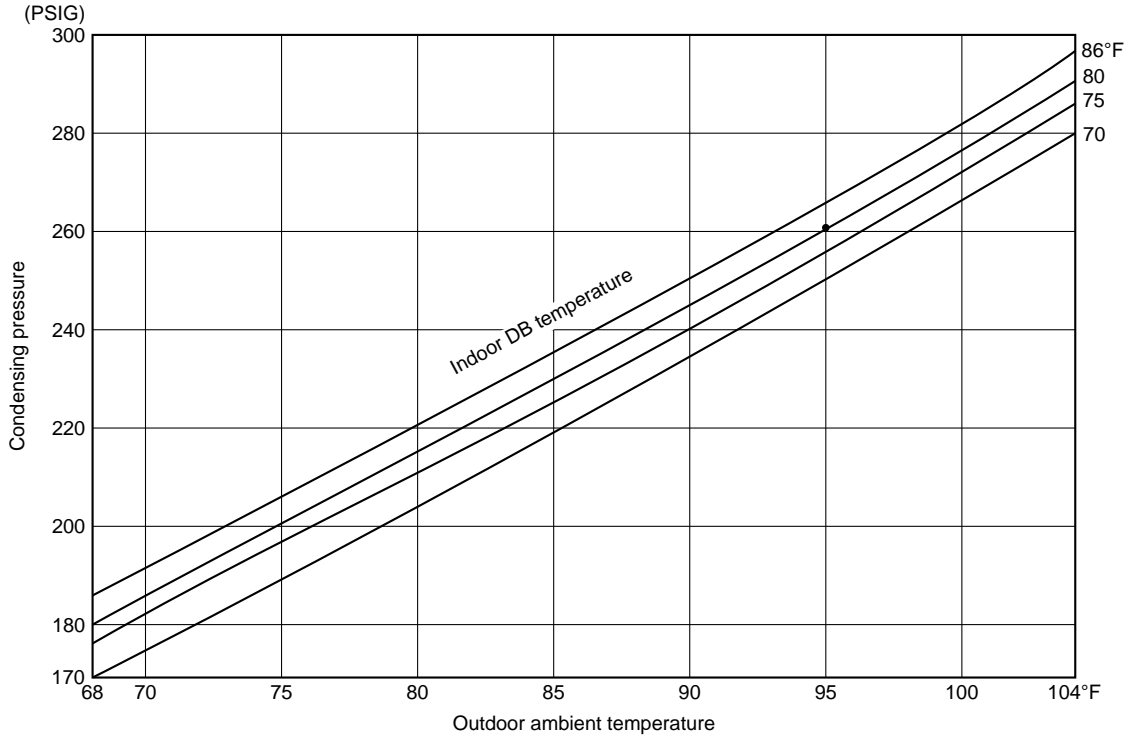
MS09NW
MUM18NW



3.CONDENSING PRESSURE AND SUCTION PRESURE (ONE INDOOR UNIT WITH ONE OUTDOOR UNIT)

Data is based on the condition of indoor humidity 50%. Air flow should be set at HI. A point on the curve shows the reference point.

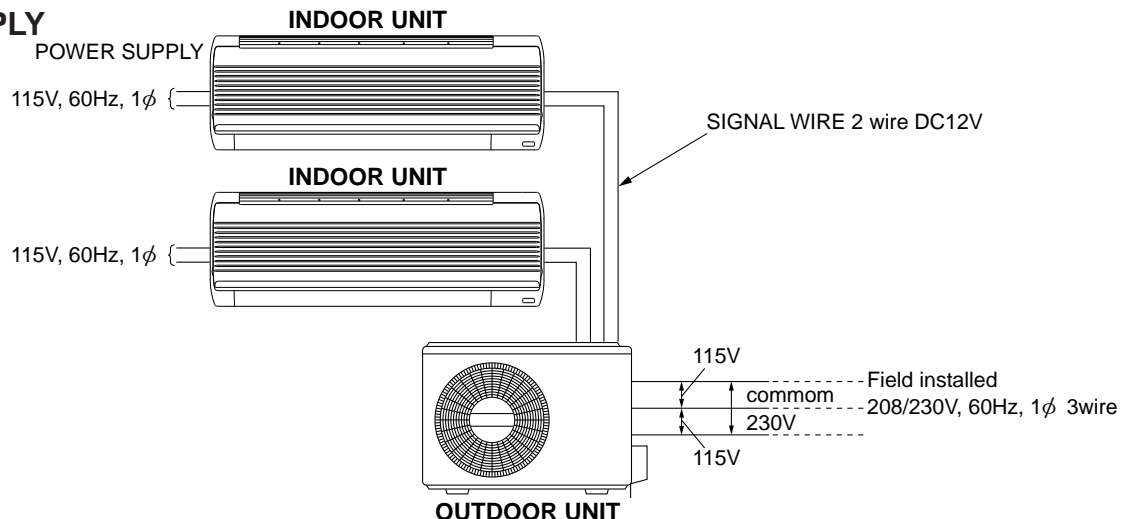
MS09NW
MUM18NW



2.STANDARD OPERATION DATA

Model			MSM18NW	
			Single	Double
Item		Unit	Cooling	
Total	Capacity	Btu/h	8,400	8,400X2
	SHF	—	0.71	0.71
	Input	kW	0.85	1.70
Electrical circuit	Indoor unit model		MS09NW	
	Power supply (V,Hz,φ)		115-60-1	
	Input	kW	0.035X2	
	Fan current	A	0.34X2	
	Outdoor unit model		MUM18NW	
	Power supply (V,Hz,φ)		208/230-60-1(3-wire)	
	Input	kW	0.815	1.63
	Comp. current	A	6.64	7.16X2
Refrigerant circuit	Fan current		1.0	
	Condensing pressure	psi·G	260	270
	Suction pressure	psi·G	75	75
	Discharge temperature	°F	194	191
	Condensing temperature	°F	116	118
	Suction temperature	°F	64	54
	Comp. shell bottom temp.	°F	172	
	Ref. pipe length	ft	25X2	
Refrigerant charge	—	1lds 14ozX2		
Indoor side	Intake air temperature	DB	°F	80
		WB	°F	67
	Discharge air temperature	DB	°F	60
		WB	°F	57
	Fan speed	rpm	1,230	
Airflow (Hi)	CFM	279		
Outdoor side	Intake air temperature	DB	°F	95
		WB	°F	—
	Fan speed	rpm	900	
Airflow	CFM	1,150		

3.POWER SUPPLY MSM18NW



4. OPERATING RANGE

(1) POWER SUPPLY

	Models	Rating	Guaranteed Voltage
Indoor unit	MS09NW	115V 60Hz 1 ϕ	Min. 103v—Max. 127V
Outdoor unit	MUM18NW	208/230V 60Hz 1 ϕ (3wires)	Min. 198V 208V 230V Max. 253V -----+-----+-----+-----

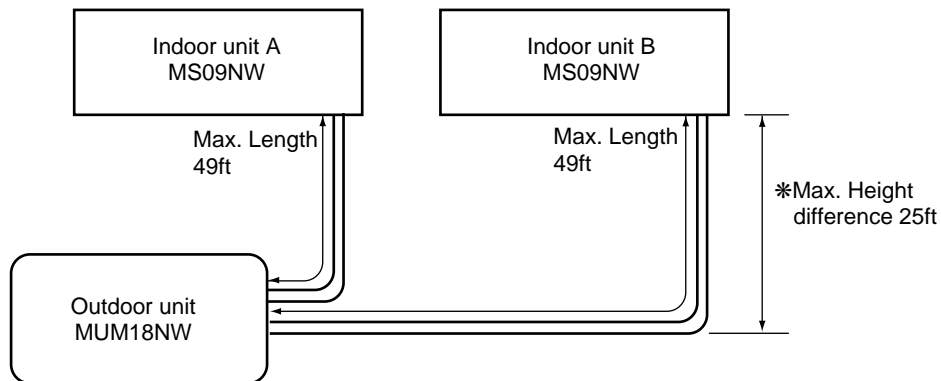
(2) OPERATION

Function	Intake air temperature Condition	Indoor		Outdoor	
		DB (°F)	WB (°F)	DB (°F)	WB (°F)
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	95	71	115	—
	Minimum temperature	67	57	67	—
	Maximum humidity	78%		—	

5. ADDITIONAL REFRIGERANT CHARGE (R-22(oz))

Model	Outdoor unit precharged (up to 25ft)	Refrigerant piping length (one way)					
		25ft	30ft	33ft	40ft	45ft	49ft
MS09NW X2 MUM18NW	1 lbs 14 oz X2	0	1	1	2	2	3

6. MAX. REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE MSM18NW



7. PIPING PREPARATION

① Table below shows the specifications of pipes commercially available.

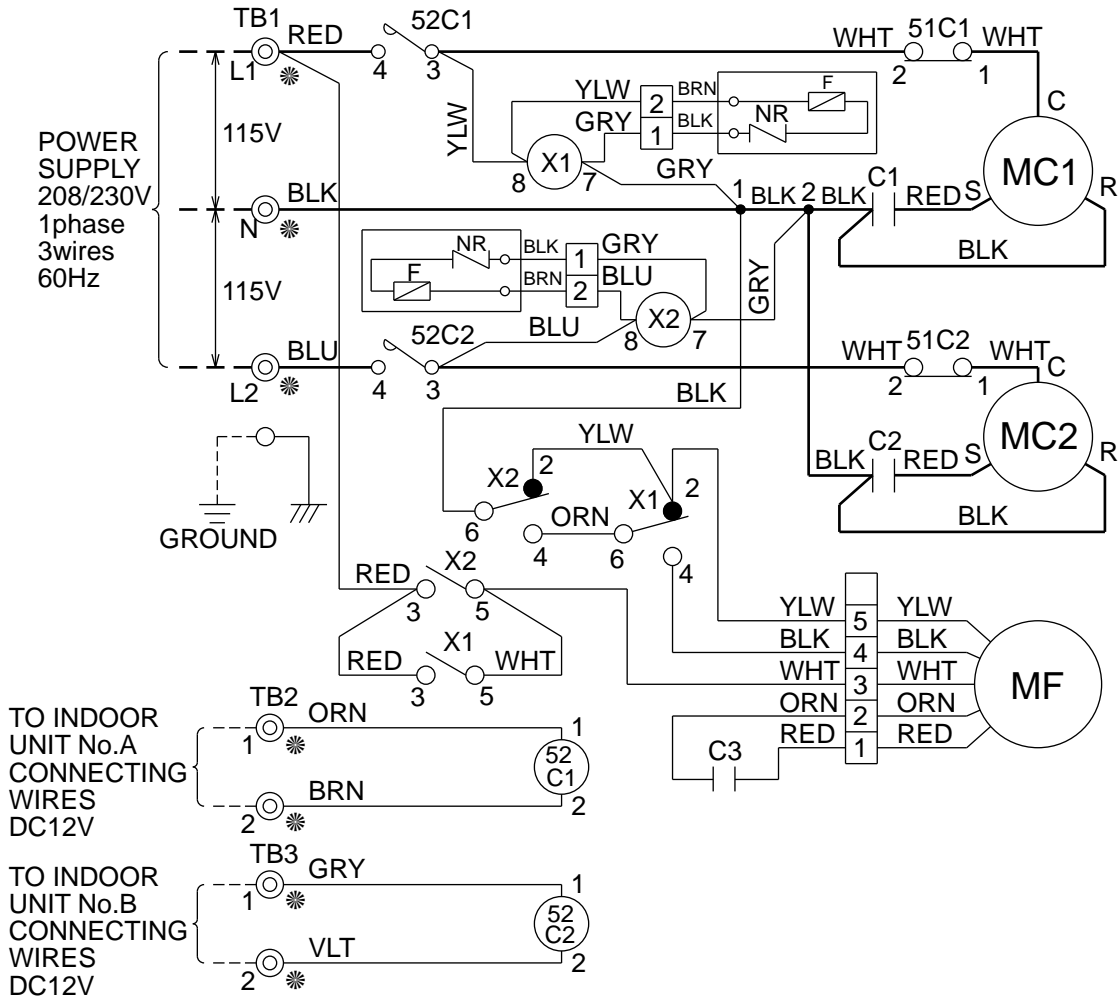
UNIT No.	Pipe	Outside diameter	Insulation thickness(in)	Insulation material
		inch		
A and B UNIT	For liquid	1/4	1/4	Heat resisting foam plastic 0.045 specific gravity
	For gas	3/8	1/4	

② Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.

③ Refrigerant bending radius must be 10cm or more.

OUTDOOR

MODEL MUM18NW WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1,2	COMPRESSOR CAPACITOR	MF	FAN MOTOR(INNER THERMOSTAT)	51C1,2	OVERCURRENT RELAY
C3	FAN MOTOR CAPACITOR	NR	VARISTOR	52C1,2	COMPRESSOR CONTACTOR
F	FUSE(3.0A)	TB1~3	TERMINAL BLOCK		
MC1,2	COMPRESSOR	X1,2	FAN MOTOR RELAY		

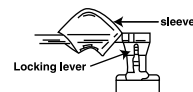
NOTE: 1. Use copper conductors only (For field wiring).

2. Symbols below indicate.

⊙: Terminal block, □□□□: Connector

3. "※" shows the terminals with a lock mechanism, so they cannot be removed when you pull the lead wire.

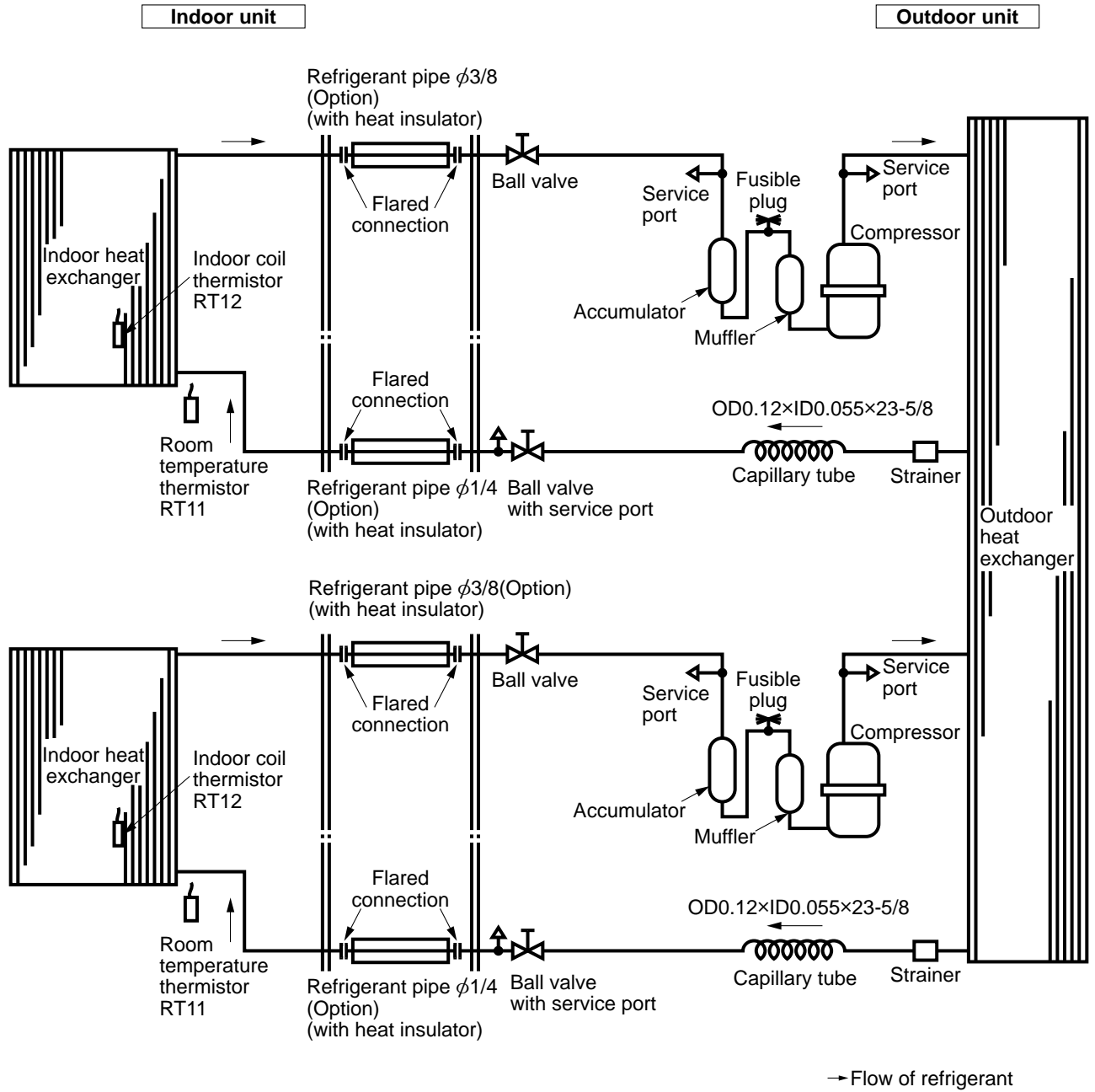
Be sure to pull the wire by pushing the locking lever (projected part) of the terminal with a finger.



1. Slide the sleeve.
2. Pull the wire while pushing the locking lever.

MS09NW X 2/MUM18NW

Unit : inch



MUM18NW

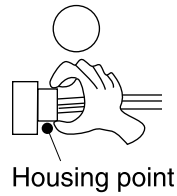
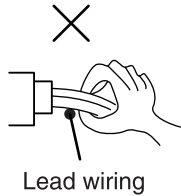
9-1 Cautions on troubleshooting

9-1-1 Before troubleshooting, check the followings:

- 1) Check the power supply voltage.
- 2) Check the indoor/outdoor connecting wire for mis-wiring.

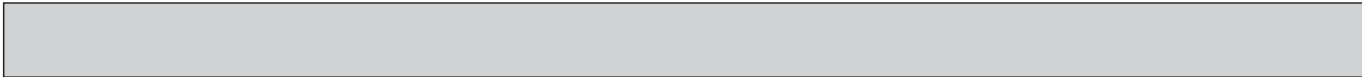
9-1-2 Take care the followings during servicing.

- 1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, disconnect the breaker.
- 2) When removing the P.C. board, hold the edge of the board with care NOT to apply stress on the components.
- 3) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.



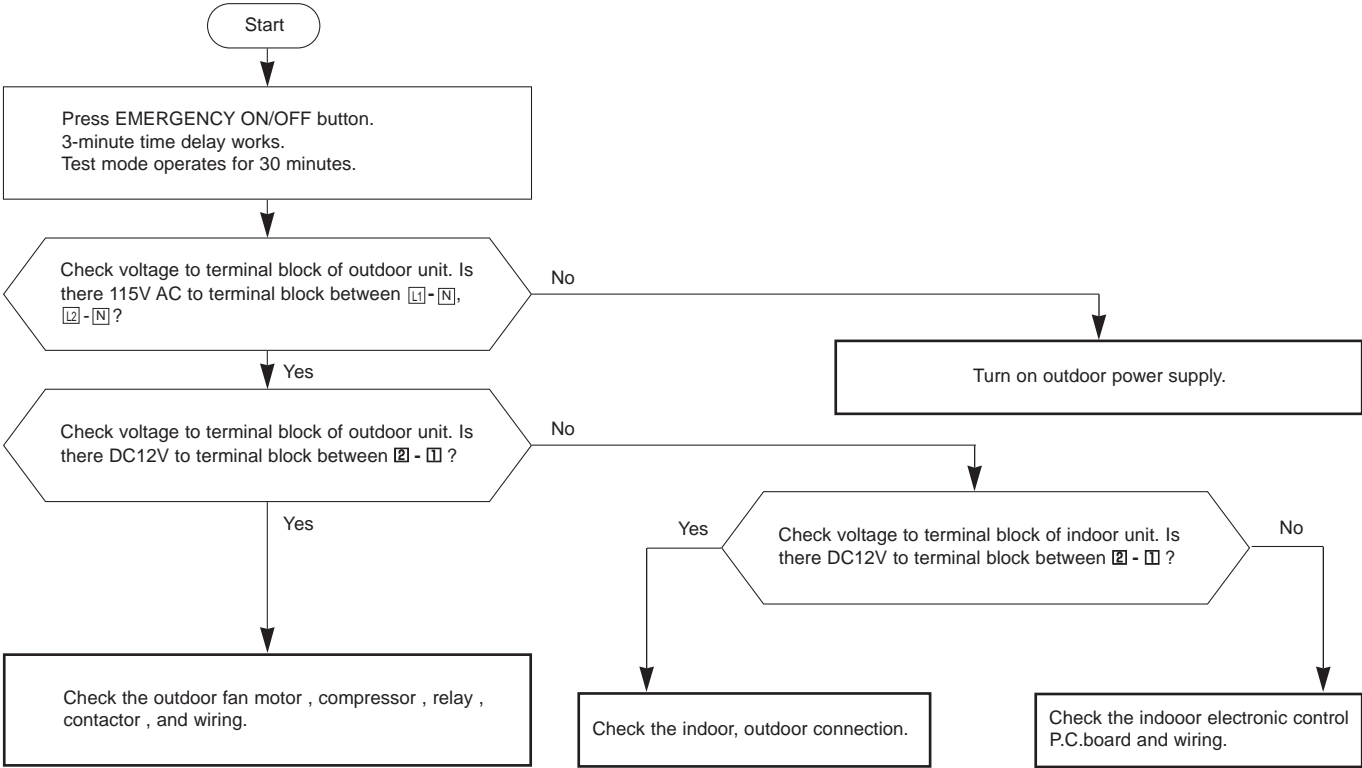
9-2 Trouble criterion of main parts

Part name	Check method and criterion	Figure										
Compressor	<p>Measure the resistance between the terminals with a tester. (Coil wiring temperature-10°C ~ 40°C)</p> <table border="1"> <thead> <tr> <th></th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>C-R</td> <td>0.86~1.06Ω</td> <td rowspan="2">Opened or short-circuited</td> </tr> <tr> <td>C-S</td> <td>1.94~2.39Ω</td> </tr> </tbody> </table>		Normal	Abnormal	C-R	0.86~1.06Ω	Opened or short-circuited	C-S	1.94~2.39Ω			
	Normal	Abnormal										
C-R	0.86~1.06Ω	Opened or short-circuited										
C-S	1.94~2.39Ω											
Outdoor fan motor	<p>Measure the resistance between the terminals with a tester. (Coil wiring temperature-10°C ~ 40°C)</p> <table border="1"> <thead> <tr> <th></th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>WHT-BLK</td> <td>17.6~21.6Ω</td> <td rowspan="3">Opened or short-circuited</td> </tr> <tr> <td>BLK-YLW</td> <td>9.1~11.3Ω</td> </tr> <tr> <td>YLW-RED</td> <td>9.1~11.3Ω</td> </tr> </tbody> </table>		Normal	Abnormal	WHT-BLK	17.6~21.6Ω	Opened or short-circuited	BLK-YLW	9.1~11.3Ω	YLW-RED	9.1~11.3Ω	
	Normal	Abnormal										
WHT-BLK	17.6~21.6Ω	Opened or short-circuited										
BLK-YLW	9.1~11.3Ω											
YLW-RED	9.1~11.3Ω											



Check of outdoor unit

Compressor and outdoor fan do not operate.(Only indoor fan operates.)



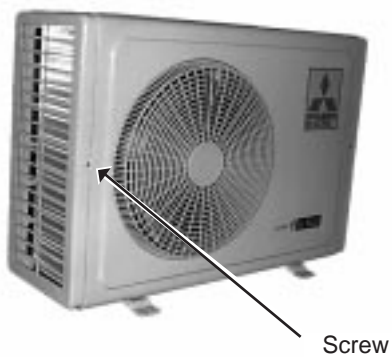
OUTDOOR UNIT MUM18NW

OPERATING PROCEDURE

1. Removing of the cabinet

- (1) Remove the set screws of the valve cover to remove the valve cover as shown in Photo 2.
- (2) Remove the set screws of the side panel to remove the side panel and cabinet.

Photo 3



PHOTOS

Photo 1

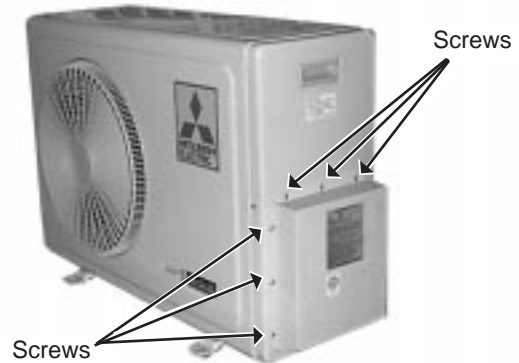
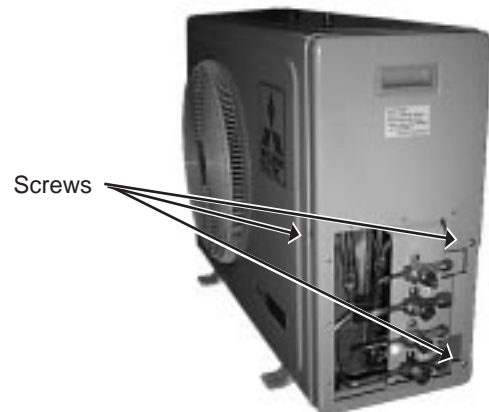


Photo 2

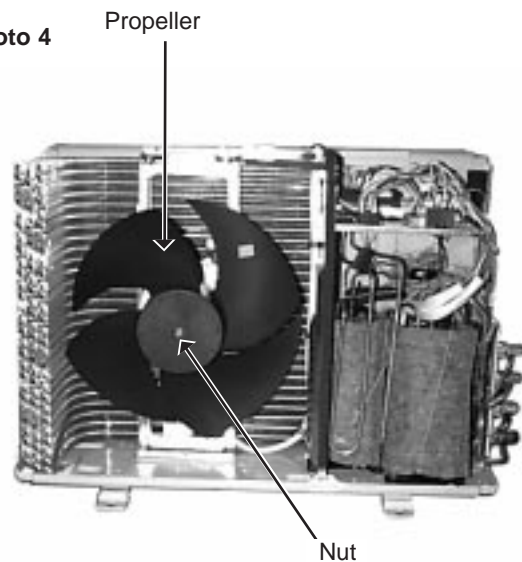
**2. Removing the propeller**

- (1) Remove the propeller nut.
- (2) Loosen the propeller in the rotating direction.
- (3) Pull the propeller forward.

Note:

- To set the propeller, fit the cut on the shaft to the mark on the propeller.

Photo 4



OPERATING PROCEDURE

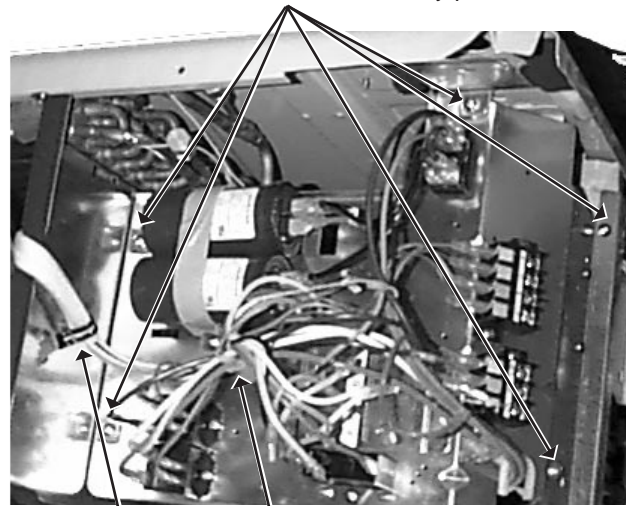
3. Removing the outdoor fan motor.

- (1) Remove the cabinet. (Refer to 1)
- (2) Remove the propeller. (Refer to 2)
- (3) Disconnect the connector remove the clamp of outdoor fan motor lead wire.
- (4) Remove the screws fixing the outdoor fan motor.

PHOTOS

Photo 5

Set screws of the relay panel

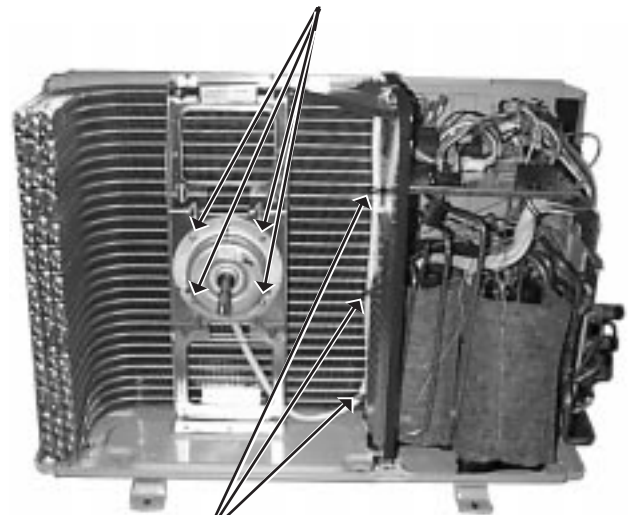


Clamp

Connector

Photo 6

Screws



Clamp

OPERATING PROCEDURE

4. Removing the compressor

- (1) Disconnect the cord connector. (See Phot 5)
- (2) Remove the set screws of the relay panel.
- (3) Remove the set nuts of the terminal cover.
- (4) Pull up the compressor.
- (5) Pull out the lead wires from the compressor terminal to remove overcurrent relay.
- (6) Remove set nuts of the compressor base.
- (7) Remove the low pressure side welded part and high pressure side welded part using a burner.

Note:

- Before using a welder, release gas inside the unit and make sure that the gauge pressure shows 0 kg/cm².
- During welding, open the charge plug because pressure rises due to expansion by heat

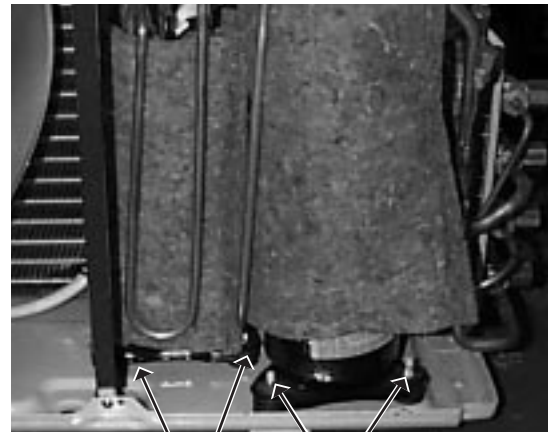
PHOTOS

Photo 7

Set nuts of the terminal cover



Photo 8



Nuts

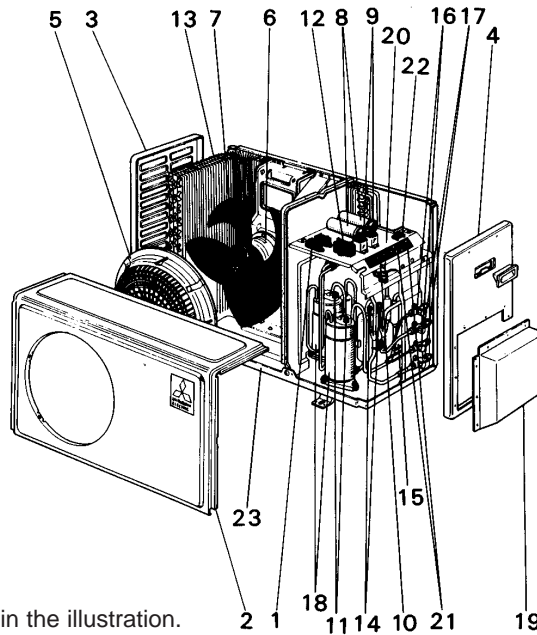
Nuts

11

PARTS LIST

OUTDOOR UNIT PARTS MUM18NW

Refer to MS09EW for indoor unit.



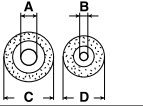
Part number that are circled is not shown in the illustration.

No.	Parts No.	Parts Name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUM18NW	
1	T2W 382 342	CONTACTOR	52C1,52C2	2	G4F11123T-M
2	T2W 462 232	CABINET		1	
3	T2W 667 249	SIDE PANEL		1	
4	T2W 739 245	SERVICE PANEL		1	
5	T2W 466 509	OUTDOOR NOZZLE		1	
6	T2W A75 301	OUTDOOR FAN MOTOR	MF	1	RA6W60-□□
7	R01 093 115	PROPELLER		1	
8	T2W 903 353	COMPRESSOR CAPACITOR	C1,C2	2	55 μ F 220V
9	T2W 466 342	OUTDOOR FAN RELAY	X1,X2	2	
10	T2W E47 378	OUTDOOR TERMINAL BLOCK	TB1	1	
11	T2W 464 340	OVERCURRENT RELAY	51C1,51C2	2	
12	T2W 466 350	OUTDOOR FAN CAPACITOR	C3	1	8 μ F 220V
13	T2W 466 630	OUTDOOR HEAT EXCHANGER		1	
14	M21 B90 641	CHARGE PLUG		2	
15	T2W 416 642	FUSIBLE PLUG		2	
16	T2W 460 662	VALVE (LIQUID) 1/4		1	
17	T2W 460 661	VALVE (GAS) 3/8		1	
18	T92 513 200	COMPRESSOR	MC1,MC2	1	8 μ F 220V
19	T2W 739 246	VALVE COVER		1	
20	M21 B93 936	CAPILLARY TUBE		2	Ω 0.12X Ω 0.055X43-5/16
21	T2W E42 375	TERMINAL BLOCK	TB2,3	1	
22	M21 020 378	TERMINAL BLOCK		1	
23	T2W 739 290	BASE ASSEMBLY		1	
24	T2W A96 641	CHARGE PLUG		2	

When servicing, cut the tube to the proper length as shown in the REFRIGERANT SYSTEM DIAGRAM see page 11.

1. REFRIGERANT PIPES

The air conditioner has flared connections its indoor and outdoor sides.
Please use the optional extension pipe as follows.

Model	Part No.	Pipe length	Pipe size O.D			Additional refrigerant charge R-22(Oz)	
			Cross-section	A-Gas	B-Liquid		Insulation
MS09NW	MAC - 440PI	10ft		3/8	1/4	C 13/16 D 1-1/16	0
	MAC - 441PI	16ft					
	MAC - 442PI	23ft					
	MAC - 443PI	33ft					1



The Slim Line.
From Mitsubishi Electric.



Mr. SLIM

 **MITSUBISHI ELECTRIC CORPORATION**



MITSUBISHI ELECTRIC
HVAC Advanced Products Division

3400 Lawrenceville Suwanee Road • Suwanee, Georgia 30024
Toll Free: 800-433-4822 • Toll Free Fax: 800-889-9904
www.mrslim.com

Specifications are subject to change without notice.